Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: GCSE Triple Science_Electricity (High Demand Questions)

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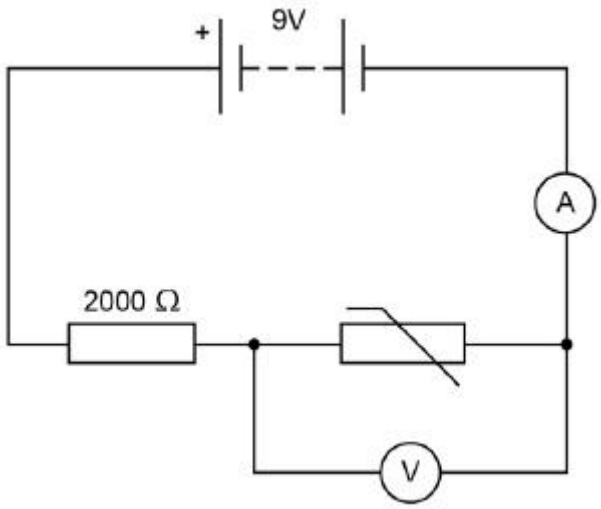
Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Q1.

The diagram shows a temperature sensing circuit used to control a heating system in a house.



(a) What quantity does the ammeter measure?

_____

(1)

(b) The current in the circuit is 3.5 mA when the potential difference across the thermistor is 4.2 V

Calculate the resistance of the thermistor.

_____

_____

_____

Resistance = _____ Ω

(3)

(c) Calculate the charge that flows through the thermistor in 5 minutes when the current is 3.5 mA.

_____

_____

_____

Charge = _____ C

(3)

(d) Explain why the potential difference across the thermistor changes as the temperature in the house decreases.

_____

_____

_____

_____

(2)

(e) The circuit shown in the diagram can be modified to turn lights on and off by replacing the thermistor with a Light Dependent Resistor (LDR).

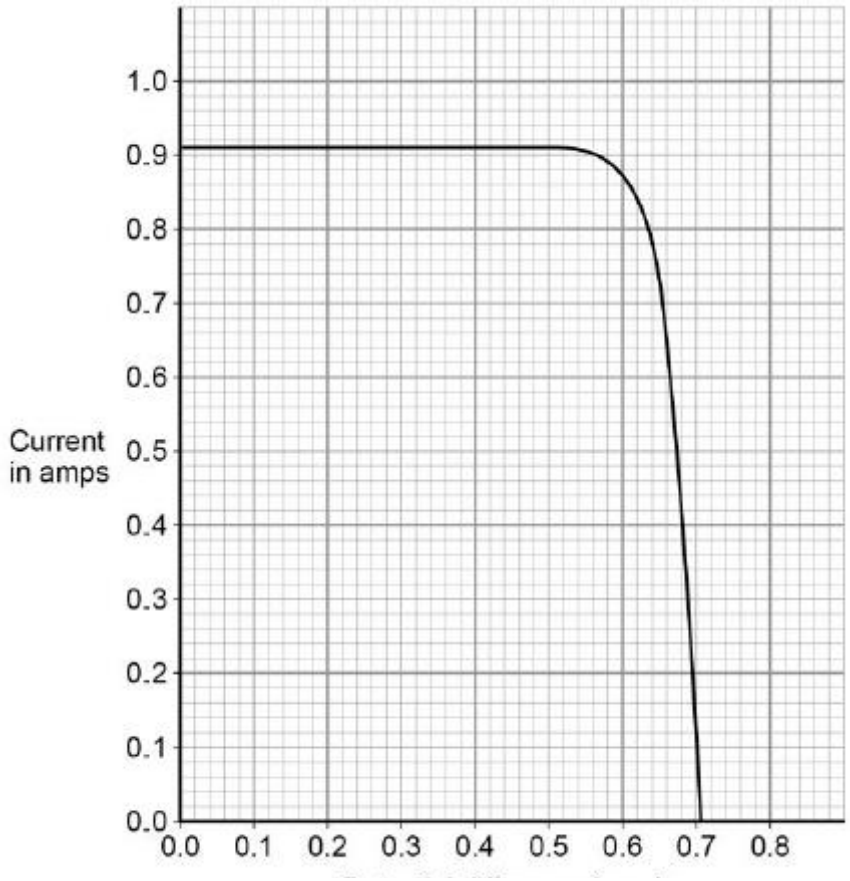
Draw the circuit symbol for an LDR in the space below.

(1)
(Total 10 marks)

Q2.

Figure 1 shows a graph of current against potential difference for a solar cell when light of intensity 450 W/m^2 is incident on it.

Figure 1



(a) Determine the power output of the solar cell when the potential difference is 0.5 V

Use data from **Figure 1**.

_____

_____

_____

_____

_____

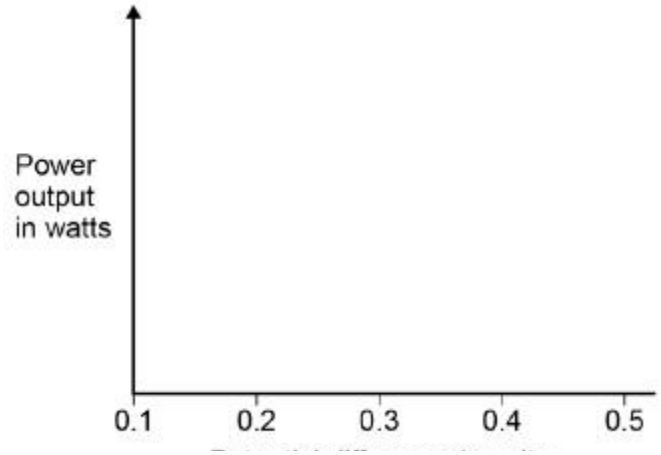
Power = _____ W

(3)

(b) Draw a sketch graph on **Figure 2** to show how the power output of the solar cell varies with potential difference between 0.1 V and 0.5 V

No values need to be included on the vertical axis.

Figure 2



(2)

(c) The maximum power output of this solar cell is 0.52 W

When the light intensity is 450 W/m^2 the cell has an efficiency of 0.15 at the maximum power output.

Calculate the area of the solar cell.

_____

_____

_____

_____

_____

_____

Area = _____ m^2

(4)

(d) A householder has four solar cells.

Each of the solar cells has a resistance of 0.78 Ω

Explain how the solar cells should be connected so that the total resistance is as low as possible.

_____

_____

_____

_____

(2)

(Total 11 marks)